

International Bank Note Society Journal



The Bank Notes of Science . . . p. 4

Volume 29, No. 4, 1990

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Volume 29, No.4, 1991

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President's Message

The London Show went off very well and the floor was packed with people on the Saturday. The Bank of England took a stand for the first time and recently opened a museum in the Bank of England premises which is an important boost to collecting in Great Britain. For many years the Bank of England was very cool toward collectors!!

Col. Boling, immediate Past President, attended the Board Meeting in London and will produce the official minutes, though there may be a slight delay as his military duties are keeping him very busy at the moment. One of the important matters raised was the practice of cleaning notes. It was felt by some that the Society Rules were not strong enough, merely requiring dealers to notify purchasers of cleaned notes where they know the note has been cleaned.

A small committee has been set up to examine the whole question under the guidance of Mel Steinberg, one of our most experienced and respected dealers. A full report will be given at a future meeting.

It looks like we are in for a busy year starting with the Maastricht Show. Hopefully a good number of members will be able to make the show which, in 1991, is being held in one of the world's famous Casino's! This will be followed by the Memphis Show and I hope to attend that show and meet many of our U.S. members who do not make it to Europe.

Perhaps one of the most important events in the banknote calendar has been the auction of the American Bank Note Co. archives. The strength of our growing hobby is shown in the fact that the first auction realized roughly treble estimate! I think the catalogues (produced by Christie's) are worth getting as reference works.

One unusual note to come up for sale in Europe was the Million Pound note brought about through the American Lease-Lend Aid to Britain. It sold for over £23,000 (see cover).

Please do help the Society by writing short articles for our magazine. Most collectors have interesting stories to tell — share them with us. Articles don't have to be academic. A little home-spun humor doesn't come amiss!

Societies such as ours rely very heavily on postal communication, so remember that if you want something done, If you think the society's not doing something it should — then you have to write to one of the directors so that we know about it. It's your society and we are elected to help you.

Have a good Christmas.

C.C. Narbeth, president.

Editor's Column

I write this halfway through my sab-batical term in Athens. Of course, being on an extended trip has allowed my family and me to use various forms of paper money including banknotes of numerous countries, checks from many different banks and traveller's checks. Thus, we have spent too many English pounds, French francs, Swiss francs, Italian lire, and, of course, Greek drachmas or dracks as they are called here. Our supply of American Express Traveller's Checks is steadily declining as our trip nears its end in January. Even my 8 and 10 year-old daughters know the various conversion rates between these countries!

I happened to pick up a copy of the rather excellent (in English) monthly, *The Athenian* today and lo and behold an article entitled, "The EC and Money Flow; the Galloping of the E's" appeared by Robert Bartholomew. This is an excellent article on EMU (Economic and Monetary Union), EMS (European Monetary System), ERM (Exchange Rate Mechanism — also known as the Snake), and the ECU (European Currency Unit). While these topics are no doubt well-known to our European members, it is incumbent on all members to learn of the great economic changes taking place in Europe. Let me invite our members to write about these changes (see also letter from Keith Edney). For example, I learned that the ECU is composed of a basket of European currencies as follows: Germany (Deutschemark) 30.5%, France (franc) 19.4%, Britain (pound) 11.9%, Italy (lira) 10.1%, The Netherlands (guilder) 9.6%, Belgium (franc) 8.1%, Spain (peseta) 5.3%, and Denmark (krone) 2.5%.

We return home to Cedar Rapids on 16 January after a journey of five months and three days.

Best regards,
Steve Feller, Editor



Pocket money from Greece.

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Dear Editor:

THE THIRD INTERNATIONAL PAPER MONEY CONVENTION AT CHERRY HILL, N.J. — Few will forget the first convention in 1985, sponsored by the Society of Paper Money Collectors. Gene Hessler was the Program Coordinator; William Horton was the General Chairman; the Educational Forum was held under the auspices of The Currency Club of Chester County. A leather-bound program, that was issued became a collectors item in itself.

The B.E.P. was heavily involved in the four day convention, providing five speakers and the Director himself. The numismatic speakers were international favorites, including Jackson, Shafer, Taylor, Criswell, Pittman, Wolka, Beresiner, Ellis, Coffing, Krause, Mischler, Bloom and Aspen.

Youth programs on the first two days were well attended. The exhibits were outstanding, the forum yet to be surpassed, and the Little Theater out performed the bourse. The bourse was completely filled with a new record set for paper money dealer involvement. The auction was by Hickman-Oakes, of course. Supported by over a hundred and twenty-five patrons and fifty dealer advertisers, the program book was outstanding. Each section was written by a prominent individual in syngraphics, each paper money club and associated numismatic club submitted an article, including the Bureau of Printing & Engraving. Robert J. Leuver, the Director of The Bureau, was the "Delegate at Large." The B.E.P. also produced a card for the convention using the "unique" Brown-Back of the Farmers National Bank of West Chester.

Mike Crabb agreed it was a suitable complement to the International Paper Money Show in Memphis. Yes it was an EVENT TO REMEMBER!

The Second International Paper Money Convention was held in 1987, and was outstanding for its content. Again held at Cherry Hill, it was sponsored by the Great Eastern Numismatic Association. The Friday program involved over two hundred school children, all of the B.E.P. Directors, past and present were there — Colin, Clements, Berry and Leuver, along with Margo Russell and Florence Shook and the speakers included Hessler, Ball, Becker and Humphris. Steve Taylor arranged a special cancel

for the card which had broken all sale records other than the A.N.A. show.

Now it is time for the Third International Paper Money Convention at Cherry Hill and it will be sponsored by the GREAT EASTERN NUMISMATIC ASSOCIATION, honoring the CURRENCY CLUB OF CHESTER COUNTY, on its TWENTIETH Anniversary. This should be another memorable convention and will occur September 27-29, 1991. It will again feature paper money dealers, exhibits and an educational forum, under the direction of Tom Sebring and a YN Program. In addition, a super special area will be highlighting the PLATE PRINTERS and a fantastic souvenir card will be available — INTAGLIO. This will be a 1500 total production enclosed in a folder. Special demonstrations and the Plate Printers Press will be exhibited along with a free drawing and a chance to win for those unable to attend.

Not only will there be the usual great exhibits, but also the Plate Printers will be surrounded with almost one hundred cases of Obsolete Notes of The Delaware Valley. This should be a truly great event with more to come as September approaches, but with this year being the twenty-ninth anniversary of G.E.N.A. and the twentieth anniversary of the CURRENCY CLUB OF CHESTER COUNTY — you know it'll be an event worthy of your attendance — so mark your calendars NOW.

Nelson P. Aspen

Dear Editor:

I am in possession of a Bermuda Government specimen set P-18 to 22 which I acquired from a well-known and highly respected dealer.

My question is why is there no notation regarding the existence of this issue in the 6th edition, Vol II, of the *Standard Catalog of World Paper Money*.

My specimen set mentioned above are with zero serial nos., hole punched in all four corners and overprinted SPECIMEN.

Hoping to elicit a reply concerning this and wishing the *I.B.N.S. Journal* continued success.

Sincerely yours,

Robert G. Lytree, I.B.N.S. 5149
350 Golf Club Rd., #3
Pleasant Hill, CA 94523

Dear Editor:

As requested in the *I.B.N.S. Journals* of late, I am offering an article for you to publish.

The EEC and How It will Effect our Hobby.

In 1992, as I am sure you all will be aware, is when the EEC is planning to have one currency against the current twelve in use presently.

After reading an article on this I realized that this is initially for trade purposes only, but who knows eventually this could work its way through Europe's economic system and have an effect on the change in our pockets. Instead of having, as we do presently, our d. marks, pounds, lire, pesetas and francs, we could all be in possession of E.C.U.'s (European Currency Units).

Surely, this would have an incredible effect on our hobby if this was ever to be the case.

After some serious thought it crossed my mind that it would not be that difficult to make up a simple set of notes, maybe one from each country or the EEC in relatively low denominations (between \$5 U.S. and \$12 U.S. for example) which would surely be a worthwhile investment and also something to show our grandchildren and other future generations, and explain how our money used to look (and we thought £.s.d. were confusing).

I started compiling my set by looking up other people in Europe that would be affected and other people who could aid me in getting current UNC money from Europe.

If you can help me get European notes or have any comments please get in touch.

Regards

Keith T. Edney, I.B.N.S. 4932
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Dear Editor:

WANTED: Neophyte Collector of Tunisia Banknote and Coins, past and present. Please write to: Ksouri Taoufik, Starenweg 2 — 4322 Sprockhovel 1, B.R. Deutschland.

Thank you,

Ksouri Taoufik, I.B.N.S. 5014

The Bank Notes of Science

A Neglected Art of Science and Technology

By Dr. Anthony R. Michaelis

Editor, *Interdisciplinary Science Reviews*, London, England

Untold millions of bank notes circulate in the world, a few of them portraying a well-known scientist and others showing a technological object. This aspect of numismatics, the artistic presentation of science, has never been considered before. The detailed design of bank notes, man's most ingenious and most profitable invention, its themes and fashions, is discussed. Technology as a prestige subject on bank notes is demonstrated, first on historical notes depicting ships and railways, then in the modern context of bridges, dams and oil refineries. As a primary source of history, bank notes of science play a minor role. The design of the British £1 note, showing Newton, is detailed, and more than 50 bank notes of famous scientists are tabulated. It is concluded that regrettably few scientists, and only one woman of science, have so far been chosen to enrich bank notes, the most prestigious visiting cards of all nations.

Academic tradition demands a definition and a general introduction when a novel subject is reviewed. The study of bank notes is the most recent branch of numismatics, a scholarly subject embracing coins and medals, which have been studied for centuries. As used here, a bank note of science shows either the portrait of a famous scientist or a technological object. As the reader may not be knowledgeable about bank notes and their design, a few introductory paragraphs precede the full discussion of science and technology on bank notes.

Scientia in papyro

There may be a few hundred oil paintings of famous scientists scattered in the national portrait galleries of the world. There may be ten thousand medals showing famous scientists¹ and hundreds of thousands of engravings, drawings and photographs. But it is the bank note, until very recently always printed on paper, that has reproduced the portraits of scientists by the tens, hundreds and even thousands of millions. The artistic design of these notes has so far been completely neglected. It has been estimated that the worldwide annual production of new bank notes has now reached 85 thousand million, rising by 10 to 15 percent each year. Among roughly the 10,000

different bank notes at present circulating, perhaps only 100 show a scientist and only 1000 a technological object.

Irrespective of country or subject portrayed, it is a regrettable fact that nobody ever looks closely at bank notes. They are accepted as a method of payment — their function — and although there are thousands of millions in circulation in the larger countries, yet very few people indeed, if any, can recall what is shown on them besides the customary head of state. Neither art historians nor historians of science have given much attention to bank notes. They have also been neglected because pictorial bank notes are of relatively recent origin, beginning about the middle of the 19th century with pictures on bank notes of the life, work and technology of the early United States.² Ships, railway engines and the electric telegraph were later included, as we shall see below. Multicolored bank notes which are today taken for granted, are of still more recent date, and those showing portraits of famous persons, including scientists, have only been in circulation since the end of World War II. (Famous scientists on bank notes are recorded in Table 3.) They are recommended to historians of art and of science as worthy of scholarly study.

Man's most ingenious and most profitable invention

Replacing the heavy and cumbersome coins with paper money of equal face value must be considered as one of man's most ingenious inventions during the last 1000 years. Today, printing paper money has become a major mass-production industry of quite staggering profitability to those licensed to do so. In fact, the phrase "a licence to print money" has entered the language as meaning an opportunity for excessive gain. The printing of money was invented by the Chinese, and in AD 1024 the government issued the first bank notes, as Needham and Tsuen-Hsuei³ have recorded. Six different wooden blocks, each with a different elaborate design, and using blue dyes ensured security against forgery, which was punishable by death. One hundred years later, by the end of the Northern Sung period, over 70 million notes were in circulation.

Common to all bank notes is the requirement for a beautiful artistic design, and hence they deserve to be called miniature works of art. Furthermore, all bank notes must have great resistance to wear and tear, a low cost of production by an appropriate printing process, and a way of preventing, if possible, forgery. For raw material, the

(c) A. R. Michaelis, 1990

ancient Chinese used paper made from mulberry bark, and today fine rag paper is employed. In recent years many experiments have been carried out to replace paper by plastic, and in 1985 the Isle of Man Government issued a £1 note, printed by Bradbury and Wilkinson, on a plastic material. The world's second plastic bank note was issued by the Reserve Bank of Australia on January 26, 1988, to celebrate the country's bicentennial. Its denomination was a \$10 and it was a remarkable scientific advance, with its double-sided hologram of Captain Cook. Bloom⁴ calling paper money "the world's last true bargain," is the only source I could find to give production costs of bank notes. For example, the Egyptian Government paid US \$0.02 in 1981 and the German Bundesbank US \$0.04 for each of their bank notes, irrespective of the note's denomination.

As bank notes are the visiting cards of a nation, their appearance, whether clean or dirty, crisp or sodden, pristine or torn, immediately reflects on the prestige of the issuing authority and on the country. Bloom states for example that the US \$1 bill has a 15-month lifespan during which time on average 500 transactions take place, after which it is destroyed. Experiments by the U.S. Bureau of Engraving and Printing with a plastic material, Dupont's Videc, raised production costs to US \$0.06-0.07 for each note, but it was considered that such a note would last almost indefinitely. Conceivably, one day plastic credit and debit cards will replace paper money, just as paper money has to a large extent replaced coins.

That plastic materials have not yet replaced paper for the world's currencies is no doubt due to a general parsimonious attitude, preferring present cost economies to technological progress and savings in the future. Even allowing a cost of, say, US \$0.10 for the design, engraving, printing and distribution to local banks, as well as their collection again at end use and final destruction of a plastic bank note, irrespective of its denomination, then the profit margins are as

follows: For a \$1 bill, 99%; for a \$10 bill, 990%; for a \$100 bill, a staggering 9990%. I can think of no other mass-production industry which would continue to use an outdated raw material, namely paper, when a better one, namely plastic, had become available, especially when such astonishing profitability is at their disposal. *Mutatis mutandis*, these profit figures apply to all countries, whatever their bank notes depict.

Bank note printing is kept as confidential as all other details of bank note production. Intaglio, most costly, offers greatest security against forgery, hence it is often used for one or two lines on a note. Offset lithography prints the remainder. Intaglio is easily recognized by running a finger across the area to be tested — it will stand proud like the printing on a costly visiting card. It is produced by a deep engraving on the printing plate which transfers a considerable amount of ink.

Yet what one man can produce, another can imitate, and the forgery of bank notes, whatever penalties are threatened, has been attempted time and time again. Often the existence of forgeries has been kept secret and they are of brief duration. Apparently only two major forgeries have succeeded: the Japanese 100-yen note which had to be replaced by a completely new issue in spite of lengthy searches for the forger. The second example was the beautifully simple Bank of England black-and-white notes. The forgers, inmates of Nazi concentration camps, produced such excellent counterfeit notes that, after World War II, the whole issue had to be withdrawn.

The conception of a new bank note

Many central banks have their own design staff and printing works, while new countries will subcontract their bank notes to a few well-established fiduciary printers. However, the basic conception of a new bank note is the same: A committee will be formed consisting of high bank officials and public servants who will invite proposals from the country's best graphic

designers. The choice of a theme for a new note or for a whole series of them will lead to much discussion, and at last one of the proposals submitted will have to be approved by the head of state, whose portrait is almost universally reproduced. The portrait of a scientist or of a technological object may well have been included.

Only Goodacre⁵ and Monestier⁶ have given brief details about the conception of a new bank note. A most unusual instance occurred in Switzerland in 1943, when a design for a new series of bank notes was rejected by the government of the time. Anonymous proposals had been submitted and the one by Hans Erni,⁷ the famous graphic artist, was chosen. It included on the 500-franc note a fine picture of a chemist with the CIBA chemical works in the background. The designs were engraved and specimen notes printed, but never issued. The government decided against Erni's designs, as he was a Marxist.

Themes and fashions in bank note design

There is no aesthetic or conceptual limitation to the design of a bank note. The simplest and earliest were the French Revolution *assignats*, but they were by no means the first (see Figure 1). The *assignats* gave in beautiful basic script the value of the note within a stylized border and sometimes included the crest of the Republic. Their stark simplicity has only been equalled by the Bank of England's black-and-white notes which were in circulation for many decades.

Towards the end of the 19th century, the fashion changed, and on European bank notes allegorical designs appeared, symbolizing trade, the arts, agriculture, labor, wisdom and fortune. I have seen no bank notes of science of that period, only an occasional technological allusion. After World War II, the fashion changed again, and new themes appeared: notable historical personages, and amongst them the first portraits of famous scientists. Naturally, each nation chose its personages from its own glorious



Figure 1. One of the earliest bank notes of science, printed by Benjamin Franklin in 1760 and current in the "Province of Pennsylvania" until 1769. Using various leaves, Franklin introduced nature printing to bank note production as a major deterrent to counterfeiting; he printed these notes from 1739 until 1764. This £5 note, in black and red, was first issued in 1759, and the Act of April 12, 1760, authorized the printing of £100,00 in different denominations. 70x83mm. See E.P. Newman⁸.

history, but almost always failed to give their names on the notes. Thus these figures have remained unrecognized, except perhaps by a few cognoscenti. French bank notes are particularly noteworthy for this neglect, which occurs also on the notes of many other countries. They can, of course, be identified by reference to Pick's encyclopedic catalog,⁹ listing 21,000 bank notes.

Equally obscure is the German Bundesbank, which chose Hermann Eidenbenz¹⁰ as its chief designer for the splendidly designed and printed current issue of notes. Many of the seven classical figures are quite unidentifiable, and in the case of the DM 1000 note a completely unknown astronomer was chosen, Johannes Schöner, who lived in the 16th century; his contributions to his subject were of a minor nature. Only the current issue of British bank notes gives the names and dates of its famous personages: Isaac Newton, the Duke of Wellington, Florence Nightingale, Shakespeare and Christopher Wren. Two of these were presidents of the Royal Society.

One might well hope that the next fashion of European and United States bank notes will depart from the historical classical images. There were certainly enough famous



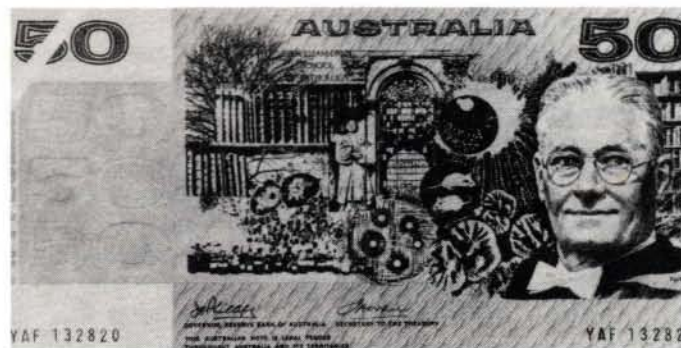
men and women during the last century who deserve to be commemorated on bank notes. The French should honor Marie Curie and George Sand, the Germans Henrich Hertz and Goethe, the British Michael Faraday and Kipling, and the United States could place a picture of the Apollo spacecraft on the reverse of their dollar bills instead of the White House or a Masonic emblem. One may also hope that the Banque de France and the United States Bureau of Engraving will allow more woman to assume their rightful place on bank notes when new issues are considered.

Only the Swiss National Bank has chosen a consistent theme of

scientists for its current issue, which was brought into circulation between 1976 and 1980. They are Leonhard Euler (1707-1783), mathematician and physicist, on 10-franc notes; H.-B. de Saussure (1740-1799), geologist and meteorologist, on 20-franc; C. Gessner (1516-1568), natural scientist and doctor, on 50-franc; F. Borromini (1599-1657), architect, on 100-franc; Albrecht von Haller (1708-1777), anatomist, physiologist and poet, on 500-franc and A. Forel (1848-1931), psychiatrist, neurologist and entomologist, on 1000-franc.¹¹ Some of these scientists may not be widely known outside Switzerland; this Swiss series of bank notes is unique in honoring a nation's great scientists.

Australia is the only other country which has given considerable prominence to scientists in its current issue of bank notes.¹² Joseph Banks (1743-1820), explorer and scientific administrator, on a \$5 note; C. Kingsford Smith (1897-1935), aviator, and L. Hargrave (1850-1915), theoretical pioneer of aviation, on recto and verso of the A \$20 note; Lord Florey (1898-1968) (see Figure 2), biochemist of penicillin fame, and Ian Clunies Ross (1899-1959), administrator of CSIRO, on obverse and reverse of the A \$50 note, and Douglas Mawson (1882-1958), Antarctic explorer, and John Tebbutt (1834-1916), pioneer in astronomy, on front and back of the A \$100 note. Perhaps other countries will follow these excellent themes and in their future bank note issues give scientists, male and female, their rightful place.

Figure 2. Australian \$50 note with Lord Florey's portrait. It was designed by Gordon Andrews, showing penicillin cultures and the library of the Oxford School of Pathology, where Florey worked for many years. 83x165mm. Current, 1973 —. (Reproduced by kind permission of the Reserve Bank of Australia.)



The pride of early technology

What could be more stable, impressive and reputable than a great engineering work as an advertisement of the credit worthiness of the note-issuing bank of a newly developing country? It is indeed interesting to discover that such a choice was made by many banks in North America in the first half of the 19th century, and that the same choice is now again being made by the newly developing countries in Africa and elsewhere. Such engineering works, be they the ships and railways of the past, or the hydro-electric dams and oil refineries of the present, symbolize the stability of the bank and the state, as well as the progressive spirit of the government and of the people. No equally ingenious advertisements have ever been found, except for the head of state, bank president or state governor.

As she has in so many other fields of numismatics, Elvira Clain-Stefanelli² has led the way in the historical and social analysis of early US bank notes. To her, the stupendous series of vignettes of these so-called "obsolete" notes are first-hand historical documents, mirroring the entire spectrum of the people's lives and activities. Banking at the beginning of the 19th century was a free enterprise in the United States, and bankers competed fiercely to attract popular custom by this, the most imaginative advertisement campaign ever devised. She illustrated her review with many scenes of industrial and other activities of those days, such as whaling, the making of turpentine, surveying, weaving, oil extraction, and road, sea and rail transportation. Her 1985 paper was presented at the Annual Conference of the American Numismatic Society.

Early steamships

Psychologists will not be astonished to find that pride in technology can become a fashion. One advertiser will often imitate and try to improve on the image of his competitor, thus reinforcing the fashion. In the early days of the American Republic, railroads and

Figure 3. Rigged as a three-masted schooner, the *Zavala* is shown on the Republic of Texas \$50 note as a paddle-wheel steamer. The note is dated 1840. 74x195mm.



roads were in an embryonic state, and commerce and passenger transport had to rely on shipping, coastal as well as inland. It is not surprising to find the first steam-powered fighting vessel of the new continent, the *Zavala*, represented on a Texan \$50 bill of 1840 (Figure 3). The Treasury Department of the Republic of Texas (1836-1846) was mighty proud of its vessel, rigged with three masts and belching smoke from its two funnels; it had small paddle wheels, mounted five guns and had a complement of 24 officers and 123 men. Built in 1839, it had a tonnage of 569 tons; it was scrapped in 1843.

Such detailed descriptions are not generally available for the many ships adorning the bank notes of that period except to specialized naval experts. Here I can only give outline descriptions of a few examples, like the \$1 bill issued by the Confederate States of America in Richmond on June 2, 1862. It showed a three-masted steamer under sail with a large paddle wheel and a funnel mounted forward of the wheel. In the Union, the Cochituate Bank of Boston had a \$5 bill printed in 1867, in black with a red overprint, also with a large three-masted steamer with paddle wheels. What looks more like a coastal steamer without sails figured on the \$1 bill issued by the Erie and Kalamazoo Rail Road Bank in the State of Michigan on January 1, 1853. A river steamer with paddle wheels was the central picture of the \$2 bill of the Bank of New-England at Goodspeed Landing; the steamer was the *City of Hartford* and had two funnels. The same bank had a related scene on its \$5 bill, namely shipyards constructing wooden ships.

But it was not only the banks of

North America that were in need of prestige technology for the illustrations on their bank notes. So, for example, the Banco Franco-Platense of Montevideo in Uruguay produced a black-and-red 20-doblonos bill on August 1, 1871, with a splendid, almost modern, steamer. Although it mounted two masts, it was obviously propeller-driven, as it no longer had the ungainly paddle wheels. Color printing also added prestige to such bills, as the 5-peso bill of the Banco Espanol de la Isla de Cuba of Havana, 1897, demonstrated. Printed in yellow, red and black, a two-funnel, three-masted paddle steamer appeared on it.

Steamers have remained favorite prestige symbols on bank notes. The German Reichsbank of 1910 was particularly anxious to show the Kaiser's might, and on its 100-mark bank note, it showed, next to a classical figure of Germania, a squadron of three great battleships, no doubt the answer to England's *Dreadnoughts*. For more than a century now, ships and boats of all sizes and shapes have remained desirable subjects for prestige illustrations on bank notes. They range from the great sailing vessels of historical times, to small private yachts, from primitive native fishing boats to great ceremonial barges of state rowed by a hundred men. A naval historian might find in these examples of numismatics a rich source for research.

Railways

When we turn to railways, we find a story similar to that told of ships. On the 19th-century bank notes, issued in the Americas, proud locomotives with huge funnels puffing smoke represent pride in new technology and the advantages

it brings. At the beginning of the 20th century, the Chinese Bank of Communications shows us more modern steam locomotives, and finally towards the middle of the present century we encounter the modern diesel and electric locomotives. In 1958 Metzeltin¹³ reviewed locomotives, railways and streetcars on German *Notgeld*, and in 1971 Muscalus¹⁴ described locomotives engraved on 116 US bank notes and scrip for the period 1832-1900.

So, for example, the Mississippi Central Rail Road Company issued in 1862 a 25-cent note displaying a 2-2 locomotive with a six-coach train. In 1876, the Compania de Obras Publicas y Fomento del Peru printed a 1-sol note with a 2-2 locomotive, and three years later the Republic of Peru had, appropriately, two different locomotives hauling their trains on a 2-sol note (see Figure 4). Most extraordinary were the locomotives shown on the 1-, 5- and 10-peso notes issued by the Nitrate Railways Company Limited in Iquique, Chile, in 1891. From a single, central, driver's station, two identical locomotives to the left and right, both 0-3-0, were controlled.

The Banco Peninsular Mexicano had a conventional 2-2 locomotive on its 5-peso note, issued from Merida, Mexico, in 1914. In 1918 a Russian railway company issued 50-, 100- and 500-ruble notes which pictured conventional 2-3-1 steam locomotives and on their reverse a beautiful map of its operating lines. These started at Baku on the Caspian Sea, then stretched north and westward, to Rostov on the Don, finishing with a spur to Tapse on the Black Sea. Pakistan is no doubt very

proud of its twin-line railway tunnel, which was the central picture on the reverse of its 5-rupee note issued in 1975; it gave no indication where the tunnel was situated.

Modern diesel trains have been featured on a number of bank notes issued by developing countries and by previously colonial states. For example in the Territoires Franc'ais des Afars et Issas a 1000-franc note was current which showed a large diesel, or perhaps diesel-electric, railway engine and train of the line from Djibouti, on the Gulf of Aden, to Addis Ababa, the capital of Ethiopia. These few examples of railway technology have allowed us to follow a century of technological progress on bank notes. Their value for the future scholar of engineering history will greatly increase, if only because these notes will demonstrate what was considered at the time of their issue of greatest prestige to the countries in which the notes circulated.

The prestige of modern technology

Bridges

Let us now turn to the great engineering works of modern times and their reproduction as prestige symbols on the bank notes of new and developing countries. Without their own design staff and bank note printing works, these countries have subcontracted the production of their bank notes to the fiduciary printers of the United States and Europe. Bridges, dams, oil refineries and a few other technological achievements, like Concorde and a single satellite have been incorporated in modern designs of bank notes. The

prestige of such works for a new country is just as great as the steamship and the early locomotive were for the United States, itself a developing country more than a century ago.

Let me begin with bridges, historically the earliest of man's great engineering works. Many early bridges are represented on German *Notgeld* issued during the inflation of 1922-23. The most impressive of modern bridges on a bank note is the multi-span steel truss bridge on the Chinese 2-yuan note of 1962, carrying both rail and road traffic, one above the other (Figure 5). Most likely it is the one across the Yangtze River completed in 1957 at Wu-han, Hupeth Province; as on most technological notes here discussed, location and date of construction are hardly ever recorded on the notes. The huge, international single-arch bridge across the Rio Paraguay is depicted on the 10-guarani note of the Republic of Paraguay issued in 1952. Constructed of concrete and stone cladding, it forms the international highway link between Brazil and Paraguay.

Among the suspension bridges, one of the longest is the 1-km bridge across the Bosphorus. It is shown on the Turkish 1000-lira note issued in 1970. A long, low multi-span concrete bridge across the Bahr el Abiad (White Nile) at Kosit in the Sudan is the main feature of the 25-piastre note issued by the Bank of Sudan in 1981. All these bridges are undoubtedly of considerable prestige for the countries in which they are situated, as they have facilitated trade and commerce, either nationally or internationally.



Figure 4. Two early steam locomotives on a Peruvian 2-soles note, dated 1879. 72x158mm.



Figure 5. The Chinese 2-yuan note showing a rail and road bridge over the Yangtze River, probably the bridge at Wu-han, completed in 1957. 50x110mm. Current 1962-.



Figure 6. Combining a picture of a hydro-electric dam with one of a traditional African sculpture, ancient and modern prestige were united on this 5-zaire note, issued in 1982 by Zaïre. 85x170mm.

Dams

Dams have been built since antiquity for the conservation of water. Multiple purposes are today served by dams — for irrigation, for the generation of hydro-electricity, to reduce peak flow during flooding, and to increase depth of water in rivers for navigation. Great dams range in height from 150 to 250 m, and they may be over 1 km in length. Such massive civil engineering works are natural prestige objects of any country, and their benefits extend far beyond their immediate neighborhood; therefore, they have often been chosen as central themes for bank notes (Figure 6), as Table 1 indicates.

Of the 20 dams listed on Table 1, 11 are hydro-electric, 8 were built for flood control, and one dam is shown during building. In each case the dam is the central theme of the bank note, and all issues are of recent date. Obviously these dams were considered by each country as of the greatest value and were thus prominently commemorated on their bank notes.

Oil installations

Turning next to purely industrial themes on bank notes, there is no limit to the variety of themes, such as the factories that were portrayed on German *Notgeld*. Here, however, the subject of oil refineries needs to

be tabulated, as it found frequent employment by banks of the Middle East as their modern technology prestige emblem (see Figure 7 and Table 2).

It is interesting to note that only two industrial countries, Canada and South Africa, have used oil refineries for their bank notes and that the other countries, mostly in the Middle East, have placed refineries on either their lowest or one of their highest denominations. The lowest will require the greatest number of notes to be printed and thus give the image its widest exposure, whereas the highest commands the greatest esteem.

Other technology

There are a few other engineering achievements which have sufficiently impressed the bank authorities responsible for the choice of theme to be placed on their respective bank notes. One of these was the supersonic aircraft Concorde, featured on the Singapore \$20 bill; it was issued in 1979 and printed by Bradbury and Wilkinson of London. Generally, airplanes are rarely seen on technological bank notes, as the places in which they are now manufactured, the United States and Europe, have remained faithful to their cautious policy on bank note themes.

The same conservative attitude applies even more to space subjects. There is only one splendid exception, namely the Indian 2-rupee note, showing its first, the Aryabhata, satellite over a cloud-covered planet Earth (Figure 8). It was launched in 1975 by a Russian Intercosmos rocket into a low orbit.

Table 1.
Dams on bank notes of developing countries.

Country	Date	Denomination	Type of dam
Zaire	1979	5 zaires	Hydro-electric
Iran	1964	50 riyals	Koohrang, flood control
Iran	ND	10 riyals	Hydro-electric
Uruguay	1975	500 pesos	Flood control
India	ND	100 rupees	Hirakud, 1957 hydro-electric
Ghana	1978	10 cedis	Hydro-electric
Laos	1974	500 kip	Hydro-electric
Laos	1979	50 kip	Hydro-electric
Guinea	1971	50 sylis	Flood control
Cyprus	1983	50 cents	Flood control
Viet Nam	1976	20 dong	Flood control
Viet Nam	ND	100 dong	Flood control
Congo	ND	100 francs	Hydro-electric
Salvador	1977	1 colon	Hydro-electric
Uganda	1985	50 shillings	Hydro-electric
Sudan	1968	1 pound	Flood control
Mali	1971-73	1000 francs	Hydro-electric
Morocco	1970	50 francs	Hydro-electric
Rumania	1952	5 lei	Building a dam
Saudi Arabia	1977	5 riyals	Flood control



Figure 7. The Abadan oil refinery recorded on a 100-riyal note issued by the Bank Markazi, Iran, in 1969. 75x150mm.

Table 2.
Oil installations on bank notes

Country	Date	Denomination	Type of installation
China (People's Republic)	1976	0.1 yuan	General view
South Africa	1973	2 rand	General view with LNG spheres, Sasol
Indonesia	1968	10 rupiah	Fractionating columns
India	1983	1 rupee	Oil-drilling platform offshore
Syria	1982	10 pounds	Liquid products storage cylinders
Saudi Arabia	1977	10 riyals	Obverse, oil drilling platform offshore; reverse, general view of oil refinery
Saudi Arabia	1983	5 riyals	General view
Canada	1971	10 dollars	Large refinery with LNG spheres
Bolivia	1945	10 bolivars	Refinery at Valle Hermoso
Bolivia	1984	50 000 bolivianos	LNG sphere
Iraq	1971	$\frac{1}{2}$ dinar	Oil pipelines to refinery
Iran	1969	100 riyals	Abadan refinery
Libya	1972	$\frac{1}{2}$ dinar	General view
Kuwait	1980	$\frac{1}{4}$ dinar	General view
Czechoslovakia	1964	50 korun	Two LNG spheres in refinery
Swaziland	1981	10 emalangeni	Oil-drilling rig on land
Qatar and Dubai	ND	10 riyals	Oil-drilling derrick on land

There is no date on this note, one of the third issues of the Reserve Bank of India. The only other space subject I know is depicted on a United States Military Payment Certificate, issued since World War II for use by American military personnel on their bases. It is a US 50-cent note, 1969, showing on the reverse an astronaut on a space walk. From the astronaut's suiting and equipment as well as the background of the Earth, it is clear that his EVA (Extra-Vehicular Activity) was carried out from a Gemini spacecraft.

Dutch lighthouse — a masterpiece

To the best of my knowledge, only one European country has recently placed a technological subject on a high-denomination

bank note, and it has produced a masterpiece of design and printing. It is the Dutch 250-guilder note, issued by De Nederlandsche Bank NV 1985, designed by R.D.E. Oxenaar and J. J. Kruit, and printed by Joh. Enschede en Zonen, all this information being recorded on the note. The basic design on the recto is a mighty lighthouse, partly printed in intaglio, whereas on the verso the main design is an outline of the Netherlands coastline with the position of all lighthouses indicated. A separate key gives the code of light signals for each lighthouse.

The note is a riot of colors, from bright yellow, blue and purple to the predominating magenta, yet total harmony is created. Although no metal thread is used, there are many security features on the note, the

most extraordinary being the micro-printing on one section of the lighthouse with letters less than 0.25 mm in height. The poem *Kustland* (Coastline) by J. Slauerhoff can be read with the aid of high magnification. An explanatory leaflet of the security features of this note, partly in English, has been issued by the bank.¹⁵ I can only repeat that this is one of the *chef-d'oeuvres* of modern bank notes.

Another masterpiece, a scientific one, was the Australian A \$10 note issued in January, 1988, to coincide with the 200th Anniversary Celebration of the Commonwealth. Printed on plastic, it contained an oval hologram, 15x20mm, depicting Captain Cook, visible from obverse and reverse of the note; micro-printing of the word "Bicentenary" made forgery even more unlikely. The scientific research for this bank note was carried out by the Division of Applied Organic Chemistry of CSIRO in Melbourne under the direction of D. H. Solomon. It is printed by the Reserve Bank of Australia at its plant in Craigieburn, Victoria.

The fame of scientists

From a numismatic point of view, famous scientists on coins are extremely rare: perhaps only a few tens of such coins have ever been

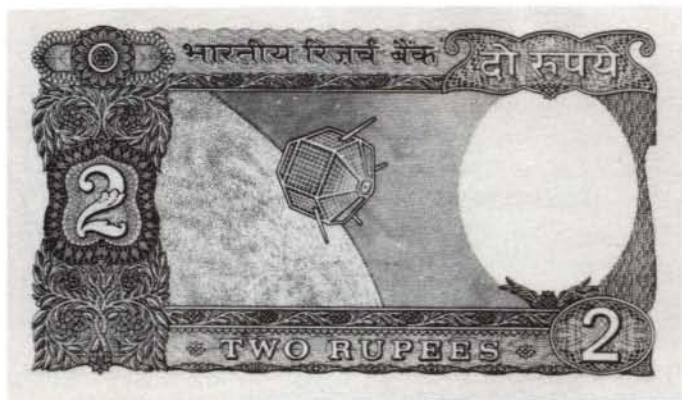


Figure 8. The only bank note so far issued showing a satellite. This is the Indian Aryabhata, launched in 1975; it was named after the Hindu astronomer of the 5th century. 65x107mm.



Figure 9. Justus von Liebig (1803-1873) on a German RM 100 note dated 1935. Note the swastika design in the center. Current from 1935 to 1945, many millions were printed. 90x180mm.

struck — but their coinages have reached millions. Famous scientists have frequently been commemorated on medals, and the total number since the beginning may have reached 10,000 to 20,000. However, in each case the issue normally numbered between 10 and 100, with very rare exceptions of 1000 or more. When we consider famous scientists on bank notes, their total number is unlikely to exceed, as a first approximation, 100, yet the printing of each note has been in the millions, the tens of millions, and occasionally even hundreds of millions. (See Figure 9).

Even the highest quality of paper as used for fiduciary printing will never last as long as the metals of coins and medals, although when properly preserved in a museum collection, like the Smithsonian Institution in Washington or the British Museum in London, the notes may well last a few centuries. The British Museum did not begin its international collection until July, 1979, although the Bank of England has preserved examples of its issues for the last 300 years; it exhibited some of these in 1987.¹⁶ Greek and Roman coins have now survived for more than 2500 years, and there is no reason to suppose that medals of scientists will not last equally long.

As I pointed out before for personal medals, a scientist must have achieved considerable fame to be commemorated on a medal or a bank note either nationally or internationally (Figure 10). Once the authorities of the issuing bank have decided on the particular scientist to be portrayed on a bank note, years of design work follow. The designer entrusted with this task will often

create a new portrait from existing sources, as a living scientist will never be chosen for a bank note. Artistic license by the designer must be assumed, although, of course, the portrait should be instantly recognizable. It is most regrettable that few countries include the name and dates of the scientists or other famous persons pictured on their notes, a convention that is followed on all medals. Even sadder is the universal ignorance of what pictures or personages are shown on bank notes, as so few users ever give more than a passing glance at the shape or color of the notes they handle. One would have thought that here the exception would be the US notes, all the same size and color, but few Americans can name the people depicted on their money.

Two special scientists on bank notes

Many countries have for over a century considered it proper to adorn their visiting cards with a picture of their sovereign or head of state. As only one scientist has been elected to such honor, in recent times, namely Dr. Chaim Weizmann (1874-1952) as first President of

Israel in 1959, his notes deserve perhaps special mention. The first issue of 1968 showed him as well as conventional floral design on a 50-lira note; the second issue of 1973 had in the background the Wix Library of Weizmann Institute in Rehovot, Israel, where he carried out his scientific research work whilst in that country. As inflation increased there was a third issue of this Weizmann note, smaller than the previous ones, and with the denomination changed from 50 lira to 5 shekels; it was issued in 1978 and also had the Wix Library as background. It will be recalled that Weizmann's scientific distinction is based on his process of obtaining acetone by bacterial fermentation, thus producing a vital war material for Great Britain during World War I. He published 101 scientific papers and obtained 111 patents on biochemical subjects.¹⁷

Another uniquely distinguished scientific bank note is the one signed by a Nobel Prize Laureate (Figure 11). In general, all bank notes carry two or more signatures as their final authentication, those of the controller general, treasurer or cashier general of the issuing central bank. It was during the German inflation of 1922-1923 that private industry was forced to issue its own paper money in order to pay its workmen and staff weekly wages. The central German bank and its printing works, the *Reichsdruckerei* in Berlin, could no longer meet the daily exponential increase in demand for ever higher denominations of bank notes, reaching towards the end of the inflation 100x10¹² mark. One of the industrial concerns permitted to print its own bank notes was the

Figure 10. Albert Einstein (1879-1955) on an Israeli 5-lira note issued in 1968. Although he was the most famous scientist of this century and there are more than 50 Einstein scientific medals, this is the only bank note with his portrait. 75x150mm. In circulation 1968-1973.





Figure 11. Bank note issued by the Badische Anilin- & Soda-Fabrik in 1922 and bearing the signature of Nobel Laureate Carl Bosch. Original denomination was 500 marks but it has been overprinted for a denomination of 5 million marks. 110x170mm. Current 1922-1923.

Badische Anilin- & Soda-Fabrik, still trading today as BASF. In 1922, the chairman of the board was Carl Bosch (1874-1940), and his company issued a 500-mark note on 15 October of that year, bearing his signature; it was overprinted — a common practice to save paper — less than a year later for the value of 5 million marks and was valid until 31 October, 1923. Bosch, it will be remembered, received the 1931 Nobel Prize for chemistry for his work on the high-pressure synthesis of ammonia from hydrogen and the nitrogen of the atmosphere. He remains the only Nobel Laureate ever to have signed a bank note.

The scientific bank note as a source of history

When considering bank notes with scientific or technological themes, one must ask whether such notes can be a source of primary historical facts. Regrettably perhaps, one must conclude that this can only have occurred on rare occasions, for example, Clain-Stefanelli's² analysis of early US bank notes (see above). For the majority of bank notes, the graphic artist will have used primary sources of another visual language for his designs, such as paintings, engravings or photographs (see Figure 12). And if on very rare occasions he may have had the opportunity to sketch an original subject—say, a rural scene in tropical Africa, a historical building or some boats on Lake Titicaca (Peru's 10-sol note) — no future

historian would ever know if the original subject had been faithfully reproduced on the note.

The many portraits which we find on contemporary bank notes have always been produced posthumously, as it is customary never to record a living person on a note, except of course the head of state. What is of primary historical interest is the fact, however, that at a given moment in history, a scientist was famous enough to have his image incorporated in a bank note design. Furthermore, his fame may have been of relatively local nature, as for example Oswaldo Cruz, who helped to eradicate yellow fever from Rio de Janeiro. Equally important from a historical point of view are the subsidiary design features which accompany the portrait of the scientist (see Figure 13). These may

be controversial or irrelevant.

That there are fashions in bank note design is well known and natural. A knowledge of these will of course aid the historian of the future, but what will be a hindrance to his research is the latest fashion, the abstract, stylized design, created by machine engraving. So far, only one series of Belgian bank notes has covered the reverse of their 100-, 500- and 1000-franc notes with an abstract pattern of lines and shapes. However aesthetically pleasing, they are of no use to an historian.

One other subject will engage the interest of the future historian: the statistical analysis of how many scientists are on bank notes, of what discipline, as well as when and where these notes were designed and printed. Until a definitive register has been prepared such research will be impossible.



Figure 12. This French 5-franc note issued in 1966 portrayed Louis Pasteur (1822-1895) with the Pasteur Institute in the background. Its beautiful design is based on historical material. 75x140 mm. Current 1966-1970

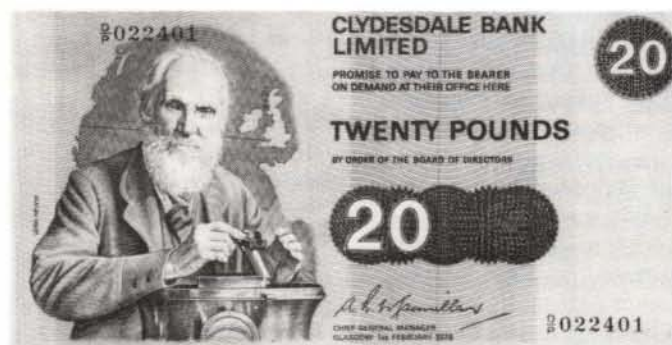


Figure 13. William Thomson, later Lord Kelvin (1824-1907), is portrayed with the marine compass which he greatly improved and with a background map of the Atlantic Ocean showing the underwater telegraph cable, the laying of which he supervised as Chief Scientist. This £20 note was issued in 1978 by the Clydesdale Bank of Glasgow, by whose kind permission it is here reproduced. 85x160mm.

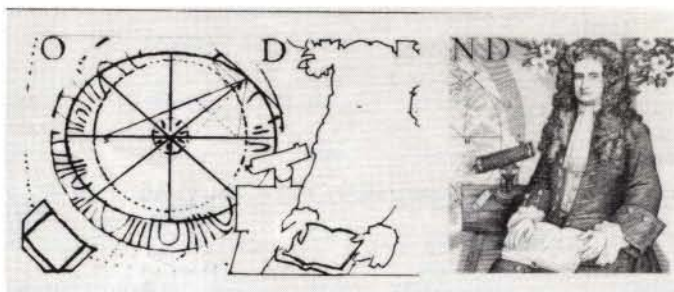


Figure 14. The original design of the British £1 note drawn by Mr. H.N. Eccleston, the Bank of England artist-designer at the time. The note was current from 1978 to 1982. At the side of the design is the figure of Newton as drawn specially for this note by Mr. Eccleston. 66x135mm. The design was kindly provided by Mr. Eccleston and is here reproduced with his permission.

The complexity of a scientific bank note design

The example chosen is that of the British £1 note, current from 1978 to 1982. On its obverse the conventional design of HM the Queen together with an interesting caduceus is shown, whereas the reverse is devoted to Sir Isaac Newton (1642-1727), who was first Warden and later Master of the Mint from 1696 onwards. Goodacre has briefly described the research that was carried out for this note; the design itself was due to H.N. Eccleston,¹⁸ the Bank of England's artist-designer at the time.

On the face, the caduceus, to the left of the Queen's portrait, originated from a half-penny trade token issued in Middlesex in 1793; the token's obverse shows Newton himself. The two concave lens elements on the note were inspired by Newton's *Optics*, Book 1, Part 1, Plate V, and the pendulum below the caduceus also came from *Optics*, Book 2, Plate II.

The back features a more complicated design which has even given rise to some controversy, as the artist's license of free interpretation has been criticized (Figure 14). Eccleston wrote to me that "None of the features should be regarded as a literal interpretation or demonstration of Newton's works." On the right of the reverse is the portrait of Newton, newly drawn by Eccleston for this bank note; Newton holds in his hand the first edition of *Principia* opened at the page which shows the main feature, namely Proposition XI, Problem VI: "If a body revolves in an ellipse, it is required to find the law

of the centripetal force tending to the focus of the ellipse." This diagram is obviously non-controversial.

Behind the diagram of the Proposition, Eccleston placed a design representing the Universe with the Sun at its center and three ellipses at various angles around the Sun; it should have been at their focus, of course. The machine-engraved solar corona surrounding the drawing of the Universe was inspired by a photograph in Fred Hoyle's book *The Frontiers of Astronomy*.

On a table beside Newton stands the copy of his telescope in the possession of the Royal Society and a prism. Together, all these individual designs blend to create a harmonious whole of great relevance for the design of the note and of artistic beauty for the few who took time to look at it closely. The artistic license introduced might well have been dictated by a desire to make counterfeiting even more difficult, as Mr. Eccleston pointed out to me. Finally,

it might be of interest to note that the apple blossoms around the head of Newton were simply drawn from a tree in Mr. Eccleston's own garden.

Such then is a brief description of the research, the labor and the design that went into the production of a single scientific bank note. One might well conclude from this that similar research was needed for other scientific bank notes which show the instruments and work of a scientist. It is however regrettable that the Newton £1 note was only in circulation for four short years and that towards the end of that period the majority of these notes were in a most disgraceful state of wear and tear. Had the Bank of England followed the example of the Isle of Man and printed the Newton note on plastic material, it would still be in circulation today, and the tribute to one of the greatest scientists would have been more than ephemeral.

Famous scientists on bank notes listed

It is quite impossible here to give a detailed description of the design of each bank note depicting a distinguished scientist. I have tabulated those notes known to me (Table 3).

Table 3 records 55 famous scientists on bank notes, perhaps half the existing ones. Roughly, astronomers constitute 11.5 percent, mathematicians — including Wren — 7.7 percent, scientific philosophers 5.8 percent, chemists 9.6 percent, biologists 3.5 percent, geographers and explorers 28.8 percent and engineers



Figure 15. Geographers and explorers have more frequently adorned the bank notes of science than members of any other scientific discipline. Captain James Cook, RN, FRS (1728-1799), was chosen by the Reserve Bank of New Zealand for their second issue of five notes current from 1940 to 1967, when New Zealand adopted decimal currency. The £1 note had the dimensions of 85x154mm.

Table 3.
Famous scientists on bank notes

Name	Country	Date	Denomination	Face	Back
<i>Astronomers</i>					
Copernicus	Poland	1965	1000 zlotych	Vignette looking right	Solar system, Sun in centre, Earth, planets
Leverrier	France	1946	50 francs	Face looking right, compasses	Neptune with trident, 'NEPTUNE 1846'
Galileo	Italy	1973	2000 lire	Face looking left, leaning tower of Pisa	Universe, zodiac, observatory
Huygens	Netherlands	1955	25 guilder	Face looking left, planets, solar eclipse	Circular machine engraving
Schroeter	Germany	1921	20, 50, 75 pfennig	<i>Notgeld</i> ; vignette with Bessel and Harding in silhouette	'SPARKASSE LILIENTHAL'
Schöner, J. (16th cent.)	Germany	1977	1000 deutsche mark	Face of bearded man	Cathedral at Limburg, representing Piety
<i>Physicists</i>					
Volta	Italy	1985	10 000 lire	Face looking right, Voltaic pile	Volta Institute at Como, built 1927
Kelvin, Lord (W. S. Thomson)	Scotland	1978	£20	Behind ship's compass, in front of UK-US Atlantic cable	His lecture theatre in Glasgow
Schrödinger	Austria	1983	1000 schilling	Portrait looking right	University of Vienna
Franklin, B.	USA	1977	\$100	Vignette looking ahead	Independence Hall, Philadelphia
Democritus	Greece	1967	100 drachmai	Bust, atomic symbol	University of Athens
Newton	UK	1978	£1	Queen Elizabeth II	Newton, solar system, diagramme
Einstein	Israel	1968	5 lira	Vignette right, atom left	Atomic research reactor at Demona
<i>Mathematicians</i>					
Euler	Switzerland	1979	10 francs	Portrait looking left	Water turbine, solar system, 5 lenses
Descartes	France	1942	100 francs	17th-century dress, compass in hand	Angel writing 'pax', agricultural scene
Pascal	France	1968	500 francs	Portrait, Church of St Jacques	Portrait, chapel of abbey of Port Royal
<i>Scientific philosophers</i>					
Voltaire	France	1963	10 francs	Figure with quill pen, castle	Same figure, large house
Jefferson	USA	1976	\$2	Vignette in centre	Declaration of Independence, 1776
Erasmus	Netherlands	1953	100 guilder	Figure with quill writing book	Machine engraving of phoenix
<i>Chemists</i>					
Auer von Welsbach	Austria	1956	20 schilling	Portrait looking right	Church in Karawanken mountains
Curie, Marie	Poland	1989	20,000 zlotych	Vignette of Marie Curie	Vignette of nuclear reactor
Katzir-Katschalsky	Israel	1958	10 lira	Biochemist with microscope	Dead Sea scroll with urns
Liebig	Germany	1935	100 reichsmark	Vignette, swastika in centre	Two female figures
Weizmann	Israel	1968	50 lira	Portrait with floral design	Knesset, Jerusalem
Weizmann	Israel	1973	50 lira	Portrait with Wix Library	Gate of old City, Jerusalem
Weizmann	Israel	1978	5 shekels	Portrait with Wix Library	Gate of old City, Jerusalem
Böttger	Germany	1921	50 pfennig	<i>Notgeld</i> Vignette with alchemical scenes	Crest of city of Schleiz
<i>Biologists</i>					
Banks, Sir Joseph	Australia	1966	A \$5	Banks surrounded by Australian flora	Caroline Chisholm, Australian woman pioneer
Vesalius	Belgium	1971	500 francs	Head inclined to left	Statue of Aesculapius with snake around staff
Linnaeus	Sweden	1965	50 kronor	Standing figure, with <i>Linnaea borealis</i>	King Gustav III
Lord Florey	Australia	1966	A \$50	Portrait with penicillin cultures	Sir Ian Clunies-Ross, administrator of CSIRO

Table 3 (continued)

Name	Country	Date	Denomination	Face	Back
Linnaeus	Sweden	1978	100 kronor	Portrait, plants, botanical garden	Plants showing stamen and pistils
Pasteur	France	1966	5 francs	Portrait with Pasteur Institute	Portrait with racemic acid crystals, glassware
Ehrlich, Paul	Germany	1989	200 deutsche mark	Vignette of Paul Ehrlich	Vignette of microscope
Cruz, Oswaldo	Brazil	1984	50 000 cruzeiros	Portrait and inclined microscope	Oswaldo Cruz Institute
Cruz, Oswaldo	Brazil	1966	50 cruzados	Portrait and inclined microscope	Oswaldo Cruz Institute
<i>Geographers and Explorers</i>					
Mercator	Belgium	1961	1000 francs	Bearded face, Earth globe	Atlas with globe, ship, map of Indian Ocean
Saussure, de	Switzerland	1979	20 francs	Large face, hair hygrometer, snow	Expedition up Tacul glacier in 1788, ammonite
Caldas	Colombia	1966	20 pesos	Figure with globe and compass	Objects from Gold Museum
Cook, Sir James	New Zealand	1940	10/-, £1, £10, £50	Vignette, looking left	Various agricultural and historical NZ images
Flinders, Mathew	Australia	1954	A £½	Vignette, looking left	Old Parliament House, Canberra
Sturt, C. and H. Hume	Australia	1960	A £1	Vignette of Queen Elizabeth II	Two explorers in roundels, Cook in watermark
Mawson, Sir Douglas	Australia	1984	A \$100	Head in balaclava, Flinders Range	John Tebbutt, early astronomer, Sydney
Humboldt, A. von	Germany, DDR	1964	5 mark	Youthful portrait looking left	Humboldt University, Berlin
Livingstone	Scotland	1986	£10	Portrait between banana leaves	Three slaves in irons, camel, ship
Marco Polo	Italy	1982	1000 lire	Face at right	Building on vertical back
Columbus	Italy	1964	5000 lire	Figure at right	Ship, mythical sea animal
Columbus	El Salvador	1966	1 colon	Vignette in centre	Hydro-electric dam
Nansen	Norway	1972	10 kroner	Vignette on left	Nordic fishermen and harbour scene
Bélaín	French colony	1947	50 (1 NF) francs	16th-century face, ship	Naked native woman
d'Esnambuc					
Bougainville	French colony	1947	5 francs	Face right, three-masted sailing ship	Native woman, fruit, house, volcano
<i>Engineers</i>					
Santos-Dumont	Brazil	1966	10 000 cruzeiros	Young face with slouch hat	Vignette of his famous 14-bis aeroplane
Santos-Dumont	Brazil	1936	100 mil reis	Vignette of old face	Beach scene, Rio de Janeiro
Kingsford Smith	Australia	1974	A \$20	Figure right, drawings of wings	Hargreave with his model aeroplanes
Siemens, W. von	Germany	1929	20 reichsmark	Vignette on right	Worker in roundel, putti
Ressel, Josef	Austria	1965	500 schilling	Face right	Small early steamship with double propeller
Ghega, C. Ritter von	Austria	1967	20 schilling	Face right	Railway viaduct over Semmering
Stephenson, Robert	UK	1990	£5	Queen Elizabeth II	Portrait and Rocket engine
<i>Architect and Mathematician</i>					
Wren, Sir Christopher	UK	1982	£50	Queen Elizabeth II with phoenix	Standing figure, St Paul's, plan and view

9.6 percent. From this one may conclude that the selection committees choosing scientists are more familiar and more disposed towards those who have discovered their own country, if it is in the New World, or those who, by the discovery of new colonies, have brought fame and fortune to the Old World (see Figure 15). It is always interesting to find that certain countries, like

Australia, Austria, France, Germany and Brazil have chosen several of their scientists to honor their bank notes. The United Kingdom has selected two past presidents of the Royal Society for this honor.

Unfortunately, it is not possible to compare the number of scientists with the number of other professions recorded on bank notes — not including the obligatory heads of

state. In Pick's *Standard Catalog of World Paper Money* of 1990, it is claimed that 21,300 notes are listed. If we add to the estimated 100 famous scientists another estimated 900 with technological subjects, we still arrive at only 1000 out of 21,300, or 4.7 percent, hardly a very significant proportion, considering the importance of science and technology for the welfare, trade and commerce of

mankind during the 18th to 20th centuries, the period covered by Pick.

Conclusion

I can only conclude that the great majority of the banks' selection committees have been educated in the humanities and that they are ignorant of the history of science and of technology. Why should four countries, Sri Lanka, The Netherlands, New Zealand and Singapore choose a series of birds to illustrate their bank notes? They may produce attractive pictorial designs, they prevent any controversy about why certain persons were chosen and not others — but birds contribute little to a country's fame and fortune. Where are the modern technological bank notes, celebrating man's achievements in space, in computing, in nuclear physics, in biotechnology and, above all, in the medical sciences? (Although not here reviewed, none are known to an expert¹⁹; only Oswaldo Cruz (1872-1917) is included here). I also deplore the fact that so very rarely are the graphic artists allowed to sign their work, the traditional privilege of all other artists.

One could continue this lament and ask why so rarely any scientific instruments²⁰ have been recorded on bank notes. But finally one must return to the relative rarity of famous scientists on bank notes. Should the selection committees have any difficulties in choosing, one might draw their attention to the fact that since the beginning of the 20th century the selection of Nobel Laureates provides the best guide for them. In Table 3, only six Nobel Laureates find a place: Marie Curie (1903 and 1911, Ehrlich (1908), Einstein (1921), Nansen (Peace 1922), Schrodinger (1933) and Lord Florey (1945). If this review increases the number of scientists and engineers on future bank notes, it will have achieved its purpose. A final thought: The reader is urged to look at bank notes, at home and during his or her travels to foreign lands, to see what is featured on them, and why a particular subject was chosen. He or she may well derive as much pleasure and knowl-

edge from such a study as I have done.

Appendix: the literature and history of bank notes

Apart from the few references given below, there now exists a considerable literature devoted to paper money and bank notes which has been definitively recorded by Clain-Stefanelli²¹ in her *Numismatic Bibliography* published in 1984. She lists, apart from bibliographies, general references and sale catalogs, the paper money literature referring to 97 different countries, frequently subdivided geographically and historically. A total of over 1019 references is given in her *magnum opus* to bank notes alone. The remaining 17,000-odd literature references refer to other aspects of numismatics.

Chapters on the history of international bank notes have been included in their general numismatic histories by E. and V. Clain-Stefanelli²² and by Cribb²³. Hewitt and Keyworth have told the story of the British bank note during the last 300 years, and Muszynski²⁴ did the same for French bank notes of the last 100 years. For the United States of America's paper money, Krause and Lemke²⁵ have documented all federally issued notes from the Civil War to the present, and O'Donnell²⁶ has produced a handbook of US notes from 1928 to 1981.

For all other literature researches on bank notes and their detailed history, I can only refer the reader to Clain-Stefanelli's scholarly *Numismatic Bibliography*, where almost all is recorded.

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Dr. Anthony R. Michaelis is the founder-editor of Interdisciplinary Science Reviews. He has devoted his life to the communication of science, as editor of Discovery, as Science Correspondent of the London Daily Telegraph and in his present position. He graduated in chemistry at the

Imperial College, London, and he is the author of several books on the history of science and technology. Parts of his private collection of the numismatics of science, of coins, medals and bank notes, have been exhibited at the National Academy of Sciences, Washington, DC, 1972; at a Conversazione of the Royal Society, London, 1974; at the 150th Anniversary Meeting of the British Association in York in 1981; and at the 600th Anniversary Celebrations of the University of Heidelberg in 1986.

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- ¹⁰ S. Stern, Banknoten im Museum. *Die Schöne Welt*, 1985, p. 56.
- ¹¹ Schweizerische Nationalbank, *Beschreibung der Neuen Banknoten*. Leaflet issued in Bern, October, 1976. Separate and similar leaflets were also issued for each of the 10-, 20-, 50-, 100-, 500-, and 1000-franc notes, describing

each note in great detail.

¹² A. R. Michaelis, Australia's scientific bank notes. *Interdisciplinary Science Reviews* 12, 364 (1987).

¹³ G. H. Metzeltin, *Eisenbahn, Strassenbahnen und Lokomotiven auf Geldnotscheinen. Ein Beitrag zur Geschichte der Verkehrsbetriebe*. Dortmund, 42 pp. (1958).

¹⁴ J. A. Muscalus, *Locomotive engravings on state bank notes and scrip 1832-1900*. Published by the author, Bridgeport, Pennsylvania, 44 pp. (1971).

¹⁵ De Nederlandsche Bank. *What to Look for on the 250 Guilder Note*. Available from the bank at Postbus 98, 100 AB Amsterdam, The Netherlands.

¹⁶ V. H. Hewitt and J. M. Keyworth, *As Good as Gold—300 Years of British Bank Note Design*. British Museum Publications, London (1987).

¹⁷ A. R. Michaelis, *Weizmann Centenary*. Pamphlet No. 59, Anglo-Israel Association, London (1974).

¹⁸ Private Communications from H.N. Eccleston, March 14, 1978 and January 25, 1984.

¹⁹ Private discussion with Professor R. Sonnenschein, Department of Physiology, University of California, Los Angeles, May 23, 1987.

²⁰ A. R. Michaelis, The numismatics of scientific instruments. *Bulletin of the Scientific Instrument Society* (London) (1988).

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²² E. and V. Clain-Stefanelli, *Coins, Currency and Medals*. Riverwood, New York (1974).

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²⁵ C. L. Krause and R. F. Lemke, *Standard Catalog of United States Money*. Krause Publications, Iola, Wisconsin (1982).

²⁶ C. O'Connell, *The Standard Handbook of Modern United States Paper Money*. Krause Publications, Iola, Wisconsin (1982).

The Islands of Jersey and Guernsey — Channel Islands Modern Replacement Notes

by Francis Thornton

As is often the case with our hobby, the casual sighting of an unusual prefix leads into a new line of research. Over the last few years I have written about the modern issues of both Jersey and Guernsey in this *Journal*, covering their designs, signatories, prefix changes and specimen issues. The actual sighting of the Z prefix has prompted this introduction to Channel Island replacement issues.

Through the assistance of Mr. I. Monins in his capacity as Adviser on Coinage to the States of Jersey currency issues, we have been able to confirm, through the printers De La Rue, that there were no Z replacement notes issued under the F.N. Padgham signature. The policy employed at that time was to replace defective notes with exact replacements from the printers. One can appreciate that this is the most expensive way of replacing defective notes. With the appointment of Mr. J. Clennett as Treasurer in 1971

and a new issue of currency notes featuring his signature, the policy changed to replacement of standard items by substituting into the actual issue Z prefix notes. These had been printed as a separate series with their own range of numbers and prefix.

Photograph 1 — illustrates a replacement £5 note of the 1963 dark red design which was retained by Mr. J. Clennett. At this time in the U.K. decimalization was being introduced and the banknote withdrawn. The 10/- Jersey note was similarly withdrawn, and a new design of £10 note introduced which was sympathetic to the existing £1 and £5 of the 1963 issue.

Photograph 2 — illustrates a replacement £10 note of the dark lilac design introduced in 1971.

Photograph 3 — illustrates a replacement £20 note of the new smaller design of the series, extended to include this denomination and introduced in 1976. Since this



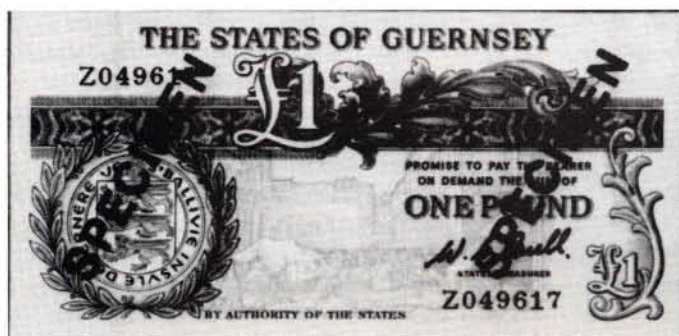
Photograph 1



Photograph 2



Photograph 3



Photograph 4



Photograph 5

series featured double prefix letters commencing at AB for all the denominations, the replacement notes carry the prefix ZB.

In 1980 the States of Guernsey introduced a new smaller design series of currency notes for values of £1, £5, £10 and £20, signed by the Treasurer Mr. W.C. Bull. Replacement notes were similarly prepared as a separate issue for substitution as required, and feature a single Z prefix letter.

Photograph 4 — illustrates a States of Guernsey £1 replacement note; whilst photograph 5 — illustrates an example of a £20 note.

In order to determine a more accurate assessment of

the number of replacement banknotes issued, the writer would welcome any details of prefix and serial numbers of any Z or ZB replacement notes held by collectors.

The writer wishes to thank the Treasury of the States of Jersey for permission to use the illustrations of the replacement banknotes, and their advisor, Mr. I Monins F.R.N.S. for acting on my behalf. The writer also wishes to thank the Treasury of the States of Guernsey for their approval.

THE JOURNAL NEEDS YOUR ARTICLES AND CONTRIBUTIONS

(IN WORDPERFECT, IF POSSIBLE)

please send to

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International Bank Note Society

Minutes of the Meeting of the Executive Board, August 25, 1990, Seattle, Washington

Pursuant to the announcement of then-President Boling in the memos to board members of 29 April and 11 June, a special meeting of the executive board was held in Seattle on the date shown above. Second Vice President Cleveland convened the meeting at 0949. Attending were immediate past president Boling, directors Shafer, Steinberg, and Verkooyen, and IBNS member Fred Schwan. The required quorum of five board members, of whom three must be elected members, was present.

The only agenda item was that announced in the memos cited above, namely the consideration of charges against Lars Carlzon, life member #44, for violation of point 3 of the IBNS code of ethics and for failure to answer official correspondence.

Fred Schwan was asked to present a summary of the case against Mr. Carlzon (copies of the original complaints and other documentation were present for the inspection of any member of the executive board desiring to see them). No defense was offered by Mr. Carlzon (who has never replied to any correspondence related to the complaints against him), and none was provided by the Society (per article II section 7b of the Bylaws, a plea of *nolo contendere* being assumed). Following Mr. Schwan's summary, ballots were distributed to the members present and the ballots received in the mail were opened. Mail ballots were received from President Narbeth, First Vice President Reedy, Directors Barlok, Burson, Campbell, Eccles, Hortmann, Lahre, Pheatt, Spick, and Turner, General Secretary Alusic and Treasurer Stickles. The vote was unanimous, 18-0, to find Mr. Carlzon both *guilty* as charged and to *expel* him from the IBNS. He will be notified by separate correspondence.

Vice President Cleveland adjourned the meeting at 1002.

Joseph E. Boling

21st Annual European Congress

October 5-6, 1991

Great Western Hotel
Paddington
London W2 1HE

Congress Chairman
Robert Kovary
69 Durban Road
Watford, WD 1 7DR
England

I.B.N.S. LONDON MEETINGS & BOURSE DURING 1991

You are invited to attend the following monthly meetings and bourse of I.B.N.S. London to be held at:

VICTORY SERVICES CLUB
63/79 Seymour Street
London W2 (Near Marble Arch)

All meetings are held on Thursdays at 6:30 p.m.

Date	Meeting Topic and Speaker	Auctioner
January 31	"More Bank Note Curiosities" by Yasha Beresiner	Suresh Gupta
February 28	"Sex and Bank Notes" by Dr. Richard Underwood	Pam West
March 28	"English Bank Notes" by Ernie Brooks	Mike O'Grady
April 25	"Welsh Provincial Bank Notes" by Dr. David James	Mo Godfrey
May 30	"Errors on Bank Notes" by Pam West	Richard Lobel
June 27	"Banking Books — In and Out of Print" by Alistair Gibb	Chris Souloglou
July 25	"More Historical Bank Notes" by Colin Narbeth	Simon Narbeth
August 29	"Bank Note Rarities" by John Bullen	Brian Ascroft
October 3	Cheese and Wine Party by the Courtesy of Coincraft	Claire Lobel
October 31	"Indian Bank Notes" by Suresh Gupta	Yasha Beresiner
November 28	"Dangers of Cleaning Bank Notes" by Mike O'Grady	Ernie Brooks

All are welcome to these meetings whether a member of I.B.N.S. or not.

Dealers and collectors can have a table for the evening and make a donation to I.B.N.S. on a voluntary basis.

Everyone can enter up to 10 notes for the Auction which should be handed to the Auctioneer of the Day by 7:15 p.m.

Bank note experts are generally available at these meetings for **free identification and valuation of your bank notes.**

International Bank Note Society

Minutes of the Meeting of the Executive Board October 7, 1990, London

President Narbeth convened the meeting at 1700 in the Great Western Royal Hotel. Present were Immediate Past President Boling, Directors Burson, Gupta, O'Grady, Pheatt, Spick, Steinberg, Turner, Verkooyen, and West, General Secretary Alusic, and several members.

The board confirmed the actions of the special meeting of the board in Seattle, relative to the expulsion of Lars Carlzon from the IBNS.

Boling informed the board that the letter notifying former member Malcolm Murray of his expulsion had been returned unclaimed, so technically he has never been formally notified. Boling had redispached the letter by regular mail. In addition, the notice has appeared in IBNS publications and has been widely publicized within the IBNS, so he should have learned of it by now either directly or from other members in South Africa.

The committee to review the expulsion procedures for possible modification (streamlining) had no report, but a letter from Steffen Hadamovsky complaining about the long time needed to take action against errant members was discussed. The committee is requested to consider whether some early means can be used to notify members about those who are accumulating a history of violations, rather than waiting for the entire "due process" to run its course before publicizing problem members.

A report from the publications committee is that an index of *The Journal* is in preparation and that the European library catalog will be finished soon. European librarian Michael Turner reported that the library is being used

occasionally, mostly for answers to specific questions rather than for the actual loan of books.

The discussion of 30th anniversary celebrations centered on a banquet in Memphis and some sort of event in London. Nothing definite was concluded. The "Best of the IBNS Journal" book was suggested again as a possible anniversary item. Michael O'Grady suggested that we target numismatic columnists with the information that IBNS was coming to its 30th anniversary and that this branch of the numismatic hobby deserves some publicity. Suresh Gupta suggested that a special effort be made this year to attract junior collectors by giving away packages of notes of moderate value to new young members. Michael Turner felt that this was the wrong vehicle for reaching young people, and that we need to address them more directly through schools and libraries. Suresh Gupta suggested that lectures in schools and a republication of the IBNS publicity leaflet would be useful. Roy Spick observed that local libraries maintain lists of resource persons and suggested that members should arrange to have themselves listed therein. Pam West suggested that she could approach Thomas de la Rue about a commemorative ticket or other souvenir piece, and was asked to please follow up on that. Mick O'Grady said that that product should be a high priority item for next year's Congress.

A discussion was raised about the problems of dealers and others cleaning notes and misrepresenting them for sale. A committee composed of Steinberg (chair), Burson, and Blackburn was appointed to determine whether

anything other than enforcement of the current code of ethics should be introduced.

A committee to design and publish a new publicity flyer was appointed, composed of Gupta (chair), Alusic, West, Boling, and Turner. A motion was passed to appropriate £1000 to publish such a flyer or brochure.

The question of institutional life membership was raised; some directors do not feel that it is appropriate for an institution to be a life member. Parliamentarian Reedy is requested to research the bylaws and determine what the current rules say regarding such membership.

Joseph Boling called the Board's attention to the wide gap between the IBN's official sterling-dollar exchange rate (one pound = \$1.60) and the real world, and proposed that a \$1.90 exchange be adopted. The board was not confident that the pound would remain at its present high levels; a motion was passed to change the IBNS rate to one pound = \$1.80, with the fees and dues currently set in dollars to remain fixed and the equivalent sterling charged to be charged. The new sterling fees and dues are shown below.

There being no further business, the meeting was adjourned at about 1830.

Since the October 7 meeting, Boling has also received back unclaimed the registered letter sent to Lars Carlzon to notify him of his expulsion from the society following the August 25 board meeting. That letter has also been redispached without registration.

Joseph E. Boling

IBNS Dues and Fees, effective October 7, 1990

IBNS exchange rate: £1.00p - \$1.80

Dues	\$	£	Advertising	1 issue	4 issues
Regular membership	17.50	10.00		\$ £	\$ £
Family membership	22.50	12.50	Full page	160. 89.00	550. 305.00
Junior membership	9.00	5.00	Half page	90. 50.00	310. 172.00
Life membership	300.00	165.00	Quarter page	50. 28.00	175. 97.00
			Eighth page	28. 15.50	100. 56.00
			Classified, per word, per issue \$.30 or 16 pence. Minimum 30 words, \$9.00 or £5.10p. Special positions, per issue: \$25 or £14.00p. Half-tone preparation, first insertion: \$10 or £5.50p.		

Directory Advertising

(The next directory is scheduled for March 1991; the drawing for special positions will take place 1 Feb.)

Inside FRONT COVER	\$175.	£97.	Full page	\$125.	£69.
Inside BACK COVER	150.	83.	Half page	75.	42.
Outside BACK COVER	175.	97.	All advertising rates subject to 10% membership discount.		

Obituaries

Daniel K. E. Ching

I.B.N.S. #1422

Well known collector of Chinese coins, Daniel K. E. Ching, 59, died after a lengthy illness July 26. Dan was a long-time contributor to *World Coin News* and the *Standard Catalog of World Coins*.

The first of Dan's ancestors to settle in America was Chinn Mook, a native of Huichou prefecture (now Huiyang county), Kwangtung province. Born about 1861, Chinn Mook emigrated to Hawaii in 1881 on the S.S. *Lydia*, at the time when Hawaii was an independent kingdom. Although the family surname was spelled Chinn then and Ching now, the correct Mandarin spelling is Ch'en. The late Arthur Coole once quipped in a letter to me that perhaps his name should be written "Ch'ien," meaning "coins."

Dan was born in Honolulu June 11, 1931. Following graduation from Pacific Union College in 1955, he moved to Denver where he developed an interest in acting and also came to know Arthur B. Coole, a former Methodist missionary and a long time collector of Chinese coins. Dan learned about coins from Coole and kept up a correspondence with him for many years. In 1969 Dan moved to Los Angeles where he worked for Pacific Bell Telephone Company.

I first met Dan in 1971. I had just enlisted in the Navy and was undergoing paramedic training at the San Diego Naval Hospital. The C.O.I.N. show was being held in Los Angeles but I couldn't afford to stay at a hotel. Dan very kindly invited me to stay at his place. During that visit, I discovered that he also collected Chinese porcelain. We ate dinner one night on plates made in the Ch'ien Lung period (1736-95) and breakfast the next morning on plates from the K'ang Hsi period (1662-1723). Fortunately, Dan didn't tell me about the age of the plates till after we had finished breakfast!

Dan's main collecting interest was Chinese coins, especially the coins of the Japanese puppet state of Manchukuo. He had a complete collection of the coins and also an extensive collection of the paper money and picture postcards of Manchukuo. Dan requested that his Manchukuo collection be donated to a museum in Manchuria.

Dan Ching was also an avid collector of telephone tokens and Chinese-American tokens. Although I have not seen his token collections, I'm sure they

are sizable. Whenever I ask for Chinese-American tokens, dealers and collectors all over the USA have told me that they always send theirs to him. I know from bidding against him in token auctions, that he always paid top dollar for Chinese tokens. In addition to tokens, Dan also collected picture postcards showing scenes in China and in American Chinatowns. He had one card I've always coveted — a late Ch'ing dynasty view of the Tientsin Mint.

In my bibliography on Chinese numismatics, I've recorded 32 articles by Dan. Of these, 28 appeared in *World Coin News*; other articles have been published in *T'ung Pao*; the *Token and Medal Society Journal*; and the *India Asiatic Numismatic Society Journal*. His first published article (on Manchukuo coins) appeared in the latter in 1971. His last article, in the June, 1987, *TAMS Journal*, was on the medal he had struck in 1985 for the Ching family reunion in Hawaii.

Because Dan consigned his collection to Scott Semans for auction, I have had the opportunity to examine it. The entire collection numbers about 12,000 coins. The bulk of the coins are cash coins and struck copper coins. Among the cash coins are many that are seldom seen. To give but one example, there are about 300 Sung dynasty (960-1279 AD) iron coins, including many with mintmarks on the reverse. Since the early 1980's, some Sung iron coins have come on the market, but, aside from the Hsuan Ho with Shensi mintmark (Schjorth 666), mintmarked iron cash are seldom seen.

The great rarities in his collection are among the struck copper coins. His 1931 Honan 20 cash is thought to be unique. His 1901 Kirin 50 cash is the only imperial coin of that denomination and is believed to be one of 2 or 3 known. His collection also contains a machine struck example of the Taku Mint cash coin. According to British consular reports, this mint operated briefly at the Imperial Naval Yard at Taku (downriver from Tientsin). Dan also had one of the 20 or so known examples of the silver coins issued by the Taiping rebels at Nanking about 1860.

For several years Dan had suffered from hemochromatosis, a genetic blood disease believed to be quite rare, but which is now thought to be widespread. In 1989 the telephone company gave him a medical disability retirement due to his illness. As late as April the doctors were optimistic, but the disease had not been diagnosed in time and they were unable

to save him. Those of us who knew him will remember Dan as the softspoken guy who gave out candy at coin shows in Los Angeles. He is survived by a brother William S. Y. Ching of Sacramento. Burial was at Oahu Cemetery, Honolulu.

In a final statement, Dan wrote that he wanted to give something of lasting value to his family and the Chinese-American community. Toward that end he has asked that his collection of Chinese tokens and postcards be given to a museum where they can be seen and studied.

by Bruce W. Smith

Robert (Bob) Rupp

I.B.N.S. 3683

Robert (Bob) Rupp, dealer, collector and world bank note enthusiast, passed away at age 79 on July 3, 1990, after a period of failing health. Bob's ads were seen by many in *Bank Note Reporter* and *Coin World*, like the seven Cambodian notes for \$1. Bob also included free plastic sleeves with many of his orders.

He unselfishly helped many beginning world bank note collectors get started and brought many into the hobby. He was an avid promoter of LANSAs (Latin American Paper Money Society) and a member of IBNS and WPCC. His lists were economically priced, interesting, and he always replied to correspondence, even over the past year and a half when it was very difficult for him to do so.

Robert was retired from the Hecht Co. where he was manager of the furniture division. He was a member of St. Luke's Lutheran Church of Feagaville, Maryland, and a former member of St. Paul's Lutheran Church of Burkittsville, Maryland, where he served as church accountant, treasurer, and Sunday school teacher. He attended Duke University and was on the football team. In his early years he was affiliated with the YMCA youth activities and was a Red Cross lifeguard. After his retirement he was employed part time with Standard Building Systems, Point of Rocks, Maryland. He resided with his daughter and her husband in Middletown and had one grand daughter.

Bob had an enthusiasm and love for the hobby that benefited all he came in contact with as well as the hobby itself. Bob will be missed by all of us.

by John Rishel

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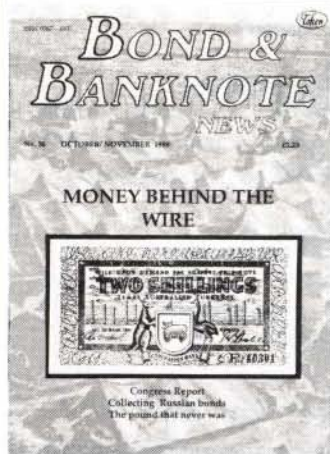
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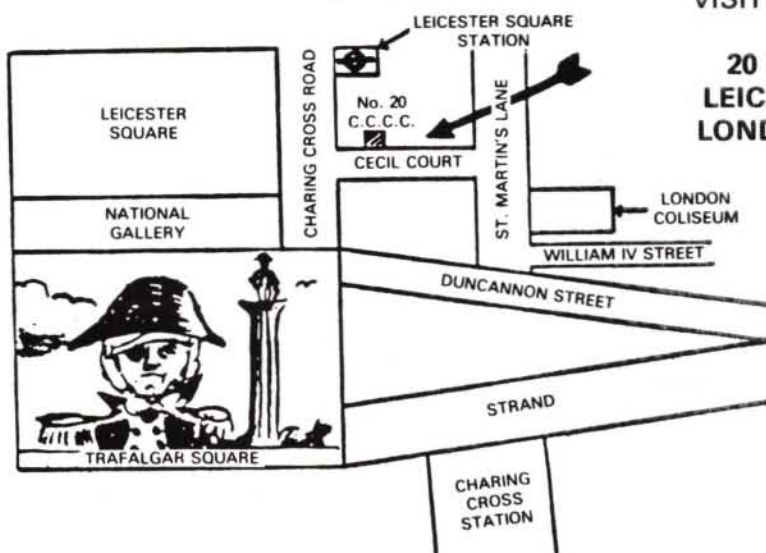
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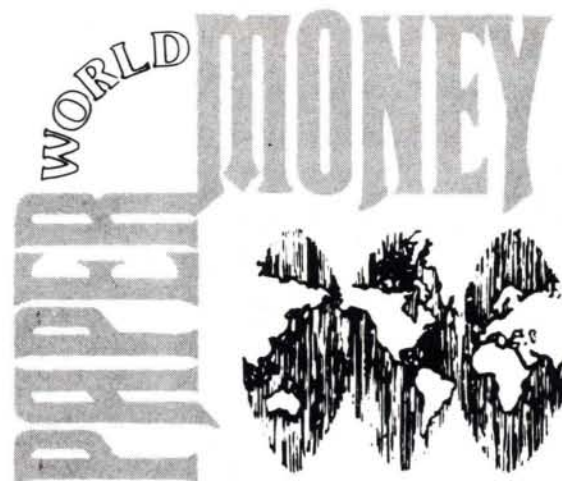
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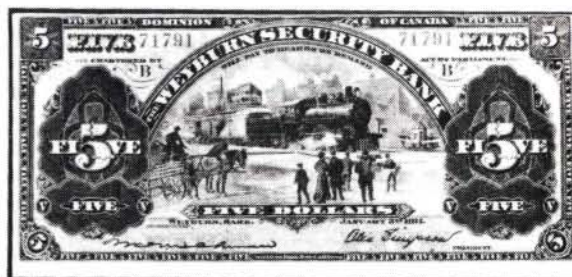
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